Appendix B

Sample Management Plan:

Interim Holding Facility for Bison on Spotted Dog Wildlife Management Area
September 2011

Legal Direction

Senate Bill No. 212 was passed by the Montana Legislature in 2011 and signed by the Governor on May 12, 2011. This legislation amended Section 87-1-216 of the Montana Codes Annotated (MCA) to require public review of a management plan before wild bison may be released on public or private lands.

Effective Dates and Duration

This Management Plan would become effective upon final approval by the Fish, Wildlife & Parks Commission, and would endure no longer than December 31, 2016 and pending the completion of a statewide bison conservation strategy.

Bison Location

All bison would be contained yearlong within an enclosure of approximately 2,560 acres. The bison enclosure would be located in the northeast portion of Spotted Dog WMA, about 4 air-miles south of the Trout Creek Road junction at Avon. The bison enclosure generally would follow and exclude the Trout Creek Road along its east perimeter, USFS Road #314 along about 1 mile of its southeast perimeter, and the access road to Spotted Dog Reservoir on its northwest perimeter. Spotted Dog Reservoir would be excluded from the enclosure. The area including the buildings at the "Old Pauley Place" would be inside the outer boundary of the enclosure at its south end. The enclosure would include all or portions of Sections 13, 14, 22, 23, 24, 25 and 26 in Township 9 N, 8W (Figure 1).

Property Ownership

FWP owns all but 320 acres of the bison enclosure area. FWP leases the remainder from DNRC (Section 26 N1/2). FWP property abuts the enclosure for about 9.5 miles of its length. The remaining 1.5 miles of perimeter would abut private property along the east and north boundaries of Section 27. The enclosure would approach one other corner of private land in Section 22 (SESW). The enclosure would exclude (fence out) and would not affect a private road easement to Spotted Dog Reservoir, and a private easement to trail cattle across the northern portion of Section 11.

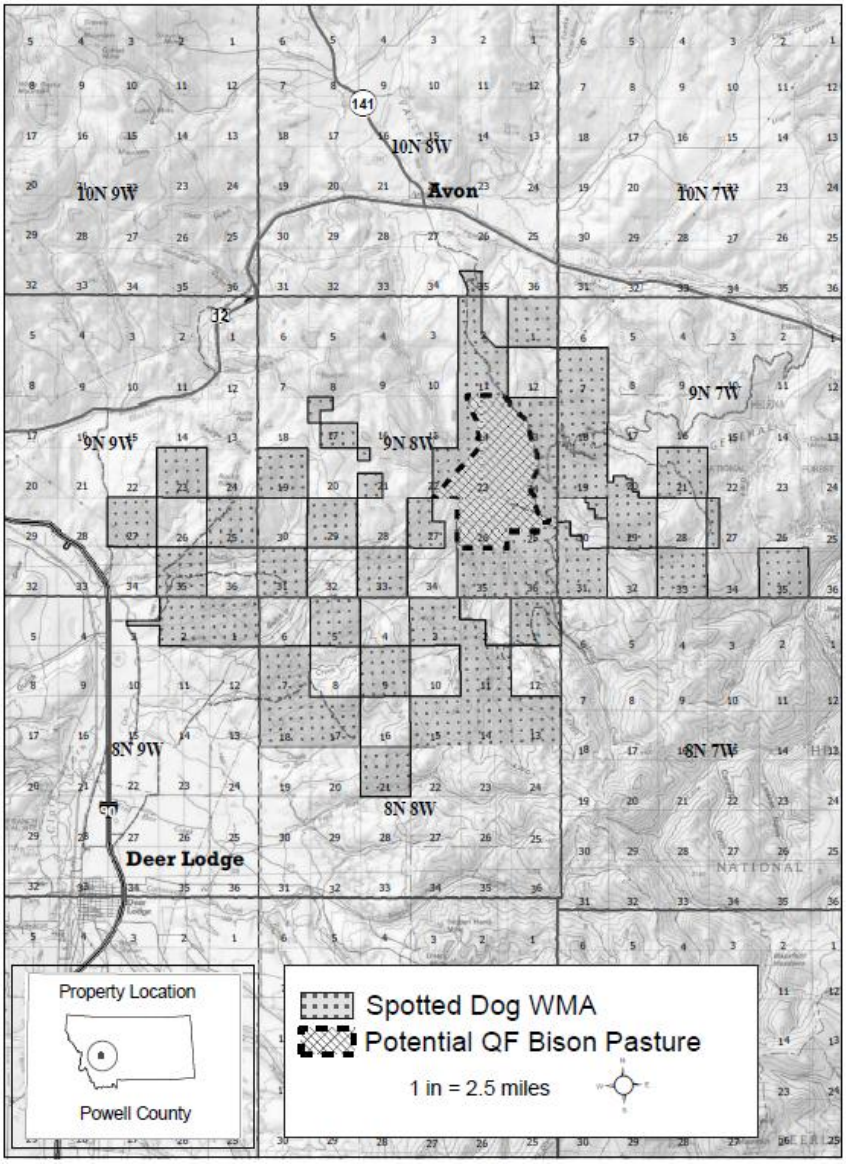


Figure 1. Proposed bison enclosure at Spotted Dog WMA.

Bison Enclosure—Environmental Features

Approximately 70% of the enclosure area is a continuous grassland bench/plateau at 5,400-5,500 feet in elevation, and is vegetated with native rangeland species, dominated by bluebunch wheatgrass. The remaining 30% of the area (generally in the southwest quarter of the enclosure) slopes downward from the bench into a complex of slopes and draws with coniferous cover. Approximately 2.5 miles of Spotted Dog Creek (including the South and Middle Forks) would be included within this portion of the enclosure.

Enclosure Perimeter Fence Specifications

The entire enclosure perimeter would be a single fence, 7-feet tall, constructed of high tensile page wire stretched between 3.5-4.0 inch (top diameter) heavy wooden posts (spaced about 15 feet apart). The page wire runs up from ground level, and the fence is topped with a single strand of high-tensile, smooth wire. Gates of the same specifications would be installed at intervals around the perimeter to allow escaped bison to be hazed back into the enclosure from all sides, and to allow deer or elk to be hazed out as the fence is being constructed, and thereafter if necessary. The fence would not be electrified. This is the fence type used to prevent escapes of Yellowstone bison at the Snowcrest Ranch (Attachment A). Perimeter length would be approximately 11 miles.

Evaluation of Alternative Fence Specifications

Alternatives to the page-wire fence outlined above are represented by the interior pasture fence-type used to distribute Yellowstone bison on the Snowcrest Ranch. This fence type consists of 5 high-tensile wires, 48 inches tall, with the bottom wire spaced 18 inches from the ground. Both the top and bottom wires would be electrified to keep bison and cattle on their respective sides of the fence. Advantages of the 5-wire fence are its permeability to wildlife, lower initial construction cost, and aesthetic benefits.

The 5-wire fence requires a tolerance for bison escapes from the enclosure. Yellowstone bison are able to jump this fence type on the Snowcrest Ranch. Elk and deer crossing the fence lead to broken wires that present additional opportunities for bison escapes. Electric fence requires frequent maintenance in remote situations such as the proposed location on Spotted Dog WMA, especially in deep snow. Deep snow would be likely to render a 48-inch fence ineffective (the bison would walk over it).

Section 87-1-216 MCA, as amended by the Montana Legislature and Governor Schweitzer in 2011, makes FWP "liable for all costs incurred, including costs arising from protecting public safety, and any damage to private property that occurs as a result of the department's failure to meet the requirements of subsection (5)." Subsection (5) substantively requires FWP to successfully contain translocated bison within the area to which they are translocated, and further to respond by constructing a more effective enclosure in the event of an escape. If bison escaped from the 5-wire fence-type, FWP could expect to eventually construct the page-wire fence-type in compliance with 87-1-216, after having also invested in the 5-wire fence, and having satisfied its liability for any damage to private fences or other properties resulting from bison escapes.

Section 87-3-130 MCA prohibits the supplemental feeding of game animals. FWP is exempted from the provisions of this statute only in the circumstance when it conducts supplemental feeding for "disease control purposes," such as in the case of completing the Quarantine Feasibility Study for the control of brucellosis in bison. In the case of deer, elk, and other indigenous game species on the Spotted Dog WMA, supplemental feeding is potentially a source of disease transmission by creating artificial animal concentrations. Upwards of 1,000 elk potentially would be affected by access to supplemental feed on this critical natural wintering area. Therefore, it is necessary to exclude deer and elk from the bison enclosure.

Hereafter, this management plan assumes that the 7-foot-tall, page-wire fence type would form the bison enclosure perimeter. The 5-wire fence type would be suitable to form internal pastures to manage bison distribution within the enclosure, similar to its use on the Snowcrest Ranch.

Administrative Access

Administrative access would originate from Avon upon the Trout Creek Road. Portions of the Trout Creek Road are occasionally impassible due to gumbo soil. FWP would have to contract for a hard-surface on approximately 5 miles of the Trout Creek Road, from its junction with USFS Road #314 to its point of departure from the WMA near Avon, to provide dependable, year-round access to the bison enclosure. The surface would have to hold up to snow plowing for daily access throughout the winter; in fact, the need to access the enclosure for feeding bison would increase as winter severity and the difficulty of accessing the enclosure also increases. A tractor and plow adequate to break through snowdrifts would be necessary for plowing the road daily or otherwise as needed, and for maintaining a navigable route over packed snow within the enclosure for feeding and watering. Provision would have to be made for parking the tractor out of the weather, where power is available to heat the engine block in the winter, ideally in or near Avon. Feasible alternate or emergency access to the enclosure would exist on USFS Road #314 from Elliston, whether by truck in summer or snowmobile on the groomed trail system in winter (spring break up would be difficult).

Public Access

The bison enclosure would be closed to public entry year-round. The proposed enclosure size and location are compromises that attempt to minimize the effects of lost public access for hunting and other purposes. The bison would be readily accessible for public viewing along more than 3 miles of dirt roads during periods of the year when the Trout Creek Road or USFS Road #314 are open and passable by vehicle. (USFS Road #314 is open to winter recreation and runs alongside the enclosure for about 2 miles.) Likewise, the enclosure would not impede the public's use of these roads to access other portions of the WMA for recreation, nor existing public access to that portion of Spotted Dog Reservoir within the WMA boundary.

No-Shooting Zone

FWP would post and enforce a yearlong closure to the discharge of firearms (i.e., no-shooting zone) in the area immediately surrounding and including the bison enclosure. The purpose of the no-shooting zone would be to avoid running deer, elk, or other wildlife into the impermeable enclosure fence, especially during hunting season. The no-shooting zone would include the areas of highest risk; e.g., the 2.5-mile stretch where the eastern boundary of the enclosure borders the Trout Creek and USFS 314 Roads, and the narrow interface between the western boundary of the enclosure and private lands. The enclosure would be more narrowly buffered by a no-shooting zone of about 200 yards (as posted) generally along its south boundary, where there are no open motorized routes. In summary, no shooting would be allowed on that portion of Spotted Dog WMA located west of Trout Creek (Figure 2).

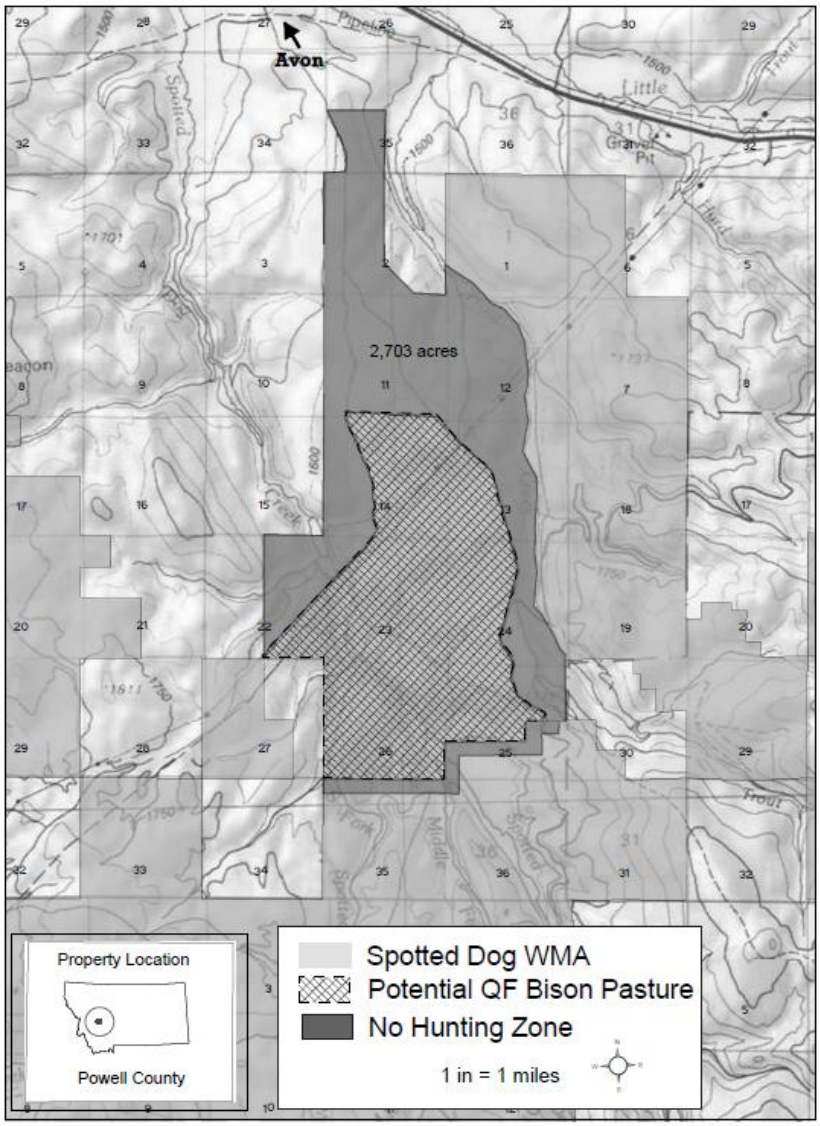


Figure 2. No-shooting zone around bison enclosure at Spotted Dog WMA.

Wildlife Passage

The bison enclosure would be impassable to antelope and intentionally resistant to entry by deer and elk. It would be possible for deer or elk to jump the 7-foot-high perimeter fence, but such occurrences would be uncommon. The primary purpose for excluding deer, elk and antelope is to avoid artificially feeding and unnaturally concentrating wildlife other than the bison.

The best deer, elk, and antelope winter range, particularly during periods of deep snow, is located on the west half of the WMA. The enclosure would not prevent wildlife access to that winter range, but it would disrupt existing travel routes and require deer, elk and other wildlife to alter their seasonal movement patterns where they currently intersect the enclosure area. Deer and elk that are year-round

residents in and near the enclosure would be displaced when the area is fenced. An effort would be made to drive deer and elk out of the enclosure while it is being constructed, and as needed thereafter.

The proposed fence design would discourage entry by wolves, coyotes, mountain lions, black bears and grizzly bears. It would be possible for the canids to dig under the fence, and for all carnivores to squeeze underneath in places where the fence does not meet the ground on uneven terrain. Bears and lions could clamber over or jump the fence. It is expected that the 2,560-acre enclosure would provide bison ample area and terrain to escape or succumb to predation as they would in a wild setting. FWP suggests that while the presence of bison and bison calves might attract the interest of predators from time to time, the fence and the adult bison themselves would deter most predatory responses.

Livestock Proximity

Cattle owned by Rock Creek Cattle Company would be grazed on the Spotted Dog WMA, potentially against all sides of the bison enclosure. FWP purchased the WMA from Rock Creek Cattle Company in September 2010, and the purchase agreement allows Rock Creek cattle to graze all of the WMA (except the "four sections" occupied by the bison enclosure) through the 2012 grazing season.

Yellowstone bison are valued for their lack of genetic introgression from domestic cattle and are considered a cornerstone of bison conservation. Fencing sufficient to prevent mixing of bison and cattle on Spotted Dog WMA is a basic requirement of this proposal.

Bison Numbers

Bison numbers to be introduced at Spotted Dog WMA would not exceed 40 animals. This number would limit the short-term impacts of grazing and trampling on native vegetation within the enclosure, and allow for incorporating natural forage and foraging into the diets and daily patterns of the animals, along with fed hay and pellets. This limit on initial numbers also would reduce pressure on the perimeter fence and reduce escapement. Bison numbers would not be controlled by public hunting while behind the fence.

Bison Testing

As part of the requirements of the project to ensure that latent infection is not present in the translocated bison, it is necessary to monitor the population for 5 years following translocation. Every animal at Spotted Dog WMA will be serologically tested by APHIS in Year One (e.g., 2012) (due to the sampling rate required to draw conclusions from a small population), and a percentage of the bison will be re-sampled during years two through five. Animal capture can be accomplished by working animals through the onsite handling facility or by chemical immobilization delivered by dart, or by helicopter capture or a combination of techniques.

Should serologically positive animals be detected in 2012 or subsequent years, the positives will be sacrificed, necropsied, and specimens collected for culture. If brucellosis infection is confirmed, whole-herd testing will be necessary. With results of the whole herd test, a disease management plan will be

developed in cooperation with the State Veterinarian's office and APHIS epidemiologists. Depending on testing results, the disease management plan may consist of vaccination and rigorous test and slaughter, to whole herd depopulation.

Bison Feeding and Husbandry

FWP would be prepared to feed bison within the enclosure as needed, particularly in winter, and would choose to feed on any given day depending on native grass production and standing crop within the enclosure, and bison response. The purpose of feeding would be to satisfy nutritional demands, conserve native vegetation within the enclosure, and prevent bison from pushing the fences. Hay would be weed-seed-free, grass (not grain). Bison would be fed in quantities that allow the animals to metabolize fat reserves and lose weight as wild animals normally would in winter, and to gain weight in summer. Conversely, bison would not be fed or managed for maximum gains or maximum calf production. Mineral pellets would be used to supplement the diet.

FWP would acquire a tractor with attachments for feeding bison. Three alternatives are being considered because of the various feed handling conditions. All 3 alternatives include a tractor with loader attached, and snow blower. The reason for differences is the comparison in feeding large round bales vs. large square bales. Large round bales are cheaper to machine feed but cost more to haul and store. Large square bales cost more to machine feed but are cheaper to haul and store. Round bale spinner feeders are cheaper but long term costs may be incurred because the feed may less palatable and more feed is needed to fill the animal's requirements. Round bale feed processors are more expensive to purchase but provide more palatable feed reducing feed costs. Supplement feeder attachments can also be mounted on the machine allowing the operator to add supplement at the same time as the feeding operation is occurring thus saving time and money instead of having to use a pickup truck mounted supplement feeder. Square bale supplement feeders do not have this option and require the use of a pickup truck with a supplement feeder.

Feed/hay shelters would be required to keep the feed dry to ensure a more palatable feed when delivered to the animal. Shelters that are built for large round bales need to be larger because round bales do not stack as tightly as square bales. (Round bales are also more expensive to haul by semi truck because they do not stack as easily as square bales). Size and cost estimate are for large round bales which weigh 1200 pounds to 1600 pounds per bale with a total weight of 150 tons of feed (215 bales). Estimated size of Feed/Hay Shelter is 100'L x 40'W x 22' H at the stringers.

A machine shed would protect the tractor and implements from the weather, and would also include a small office space and restroom for the machine operator. The machine building size is estimated to be 60'L x 30'W x 18'H with 16' x16' Machine door. Only the office and restroom portion of the building would have a cement floor. Machine floor would be gravel.

Because much of the live water that is present inside the facility would freeze during the winter months, stock water tanks would be required within the pastures. Two locations would be used--one at the Pauley Homestead and one near the Machine/Feed Storage Area.

A bison handling facility would be required for testing and shipping bison. Pens would be 8-feet tall, reinforced with 2-3/8 inch pipe (horizontal) and 3-inch pipe (vertical), and solid so that the bison cannot see or break out when confined. A heavy duty squeeze chute is also required (Attachment A). A corral adequate to hold the bison for an extended period of time would be included in the design as a means of addressing a catastrophic failure of the perimeter fence, an extreme weather event, or other unforeseen events.

Bison Escapes

FWP anticipates bison escapes to be the greatest single concern of neighboring landowners. A principal purpose for selecting a stout and relatively impervious design for the perimeter fence around the enclosure—as well as other features of enclosure size and placement, and bison numbers—is to prevent bison escapes from the enclosure. Bison are difficult to herd, and given the complexities of terrain, weather, access, roads, landownership, and limited staff and equipment, the proposal to hold bison at Spotted Dog WMA presents its greatest management challenge when bison are at large.

FWP will staff a new full-time position with responsibility for checking the bison and enclosure daily, to detect problems in advance and prevent escapes, and to detect any possible escape as soon as possible. As a precaution, FWP has outlined a response protocol to be implemented in the unlikely event of a bison escape. Elements of the response protocol include the following:

- In the event of an escape, FWP's immediate response would be divided between securing the enclosure perimeter and facilities as needed to prevent continued escapes, as well as attempting to locate and recover the escaped animals.

- While FWP field staff continue assessing the situation, the Regional Wildlife Manager would inform the FWP Wildlife Veterinarian and Wildlife Lab Supervisor, both in Bozeman, and would establish telephone communications between those parties and the herding and capture team.

- A team of qualified and field-equipped FWP staff would be assembled and dispatched as the situation warrants.

- The effort to gather the escaped bison would be further divided into functions of finding and locating all of the bison, gaining access across private properties if needed, alerting authorities in case Interstate-90 or State Highway 12 are potentially involved, and herding or gathering the bison in a location from which they can be loaded in a vehicle and transported back to the enclosure.

- Gaining access to private property as needed would be a shared responsibility of key members of the herding and capture team.

- The Regional Wildlife Manager would inform the Regional Information Officer, who would develop information for the media and the public in response to their calls and questions.

- After escaped bison are located and access is gained, capture strategies will vary depending on the circumstances. It may be possible to herd the bison back into the enclosure if the enclosure is close by.

- Failing these strategies, FWP may chemically immobilize bison in place, under the oversight of the FWP Wildlife Veterinarian. Upon successful immobilization it would be possible to helicopter-sling the immobilized animals back into the enclosure or alternative facility. Another possibility would be to mechanically load and transport the immobilized bison by truck to the enclosure or alternative facility.

- FWP would be prepared to kill escaped bison if necessary to avoid human injury or excessive property damage. Such circumstances might include bison approaching Interstate 90 or a residential bottleneck. Overly aggressive animals may be culled, if judged appropriate in the field. As a last resort, escaped bison would be killed if they could not be herded or tranquilized and transported safely. FWP personnel would field-dress any bison that were killed and donate the meat to local Food Banks. Heads and hides would be salvaged for educational purposes.

Estimated Costs

Component	Quantity	Cost
Start-up:		
Fencing:		
Boundary (11 miles)	58,080 feet @ $8.00/foot	$ 464,640
Pasture (3 miles)	15,840 feet @ $3.00/foot	$ 47,520
Gates	10 @ $10,500/gate	$ 105,000
Handling Facilities & Equipment	Handling chutes, corrals	$ 175,000
Water Infrastructure	Pump, troughs, connections to power, etc.	$ 110,000
Feed/Hay Shelter	100'Lx40'Wx22'H	$ 28,000
Machine Shed with office	60'Lx30'Wx18'H	$ 38,000
Tractor	High estimate, depending upon options	$ 185,250
Misc. Equipment	ATVs, signage	$ 10,500
	TOTAL:	$ 1,163,910
Annual:		
Personnel:		
Herd Mgmt	(1) FTE, (1) part time & veterinary services	$100,000
Fence/Facility Maintenance		$ 3,200
Feed		$ 14,553
Mineral Supplements		$ 5,200
Utilities	Storage Building and Stock Tank Pumps and Heaters/year	$ 2,800
Fuel	For tractor operation 189 days of feeding/year	$13,891
	TOTAL:	$ 139,644

Montana Fish, Wildlife & Parks

MEMORANDUM

TO: Files **DATE:** December 8, 2010

FROM: Mike Frisina & Steve Knapp

SUBJECT: Interview with Dave Dixon, Manager Snowcrest Ranch (R3)

On 29 November 2010 Steve Knapp and Mike Frisina met with Dave Dixon to draw upon his many years of experience with bison management. Following are notes and photographs that resulted from that discussion:

FENCES

Pasture Fences

The best ranch fence he has found for holding bison within pastures is a 5-wire (high tensile) electric fence 48" in height—18" bottom wire (Figure 1.) If cattle are not also against the fence then it is only necessary to electrify the top wire. If both cattle and bison are against the fence, both the top and bottom wire must be electrified.

Dave Dixon recommends this fence design based on many years of experimenting with different fence designs while working for Turner Enterprises. The aforementioned fence design balances cost with maintenance requirements. All bison fence configurations, short of a quarantine fence to be discussed later, require frequent maintenance. Bison are very large and aggressive animals that are hard on fences. The 5-wire fence requires inspection for problems about once a week; other less sturdy fences are less expensive but cost much more for maintenance including fence repair and of recapture of bison. An of concern issue is that other wildlife, especially elk will break/tear down the high tensile wire. The 5-wire high tensile design costs about the same as a 5-wire barbed

fence and is more secure for bison than the barbed wire fence. Solar chargers are an additional cost for the high tensile fence (Figure 1.).

Bison are easier to train to respect electric fence than are cattle, but it is still necessary to go around the entire electric fence to check for problems about once a week.

All fences will be eventually breached by the livestock they are holding. This can be due to a variety of factors, among them pressure against the fence, damage by migrating wildlife, or damage from snow, wind, and ice. A barbed wire fence has the highest maintenance needs when it comes to bison. In Dave Dixons words, "a bison has no respect for barbed wire or standard woven wire."

Snowcrest Ranch uses heavy fiberglass posts (1.25"-1.5") and steel brace-posts to support the fence (Figure 1). Brace-posts are constructed of 2.5" steel pipe with strong welds. It is also important that gates along a bison pasture fence be mounted higher than the fence (Figure 1); otherwise bison will attempt to jump over the gate.

A 5-wire high tensile electric fence will remain electrified during winter and under adverse snow conditions. Dave has found it to be a reasonably friendly fence to deer, elk, and antelope which readily jump or crawl under it. Mike Frisina has personally observed deer crossing this type of fence on many occasions at the Snowcrest Ranch.

For electrification it is essential to maintain a power of at least 5 Joules (5,000 to 9,000 volts) to hold bison. Johnson Custom Fence of Whitehall, Montana has considerable experience building bison proof electric fence for Turner ranches.

Quarantine Fence

A much stronger fence is needed to hold quarantine bison than the 5-wire high tensile electric fence. To use Dave Dixon's description, "a seven-foot bullet proof fence is essential." For an example of the 7-foot fence used at the Snowcrest Ranch as a quarantine fence see Figure 2. The basic fence design includes heavy wooden posts (8' high with 3.5" – 4.0" top diameter) spaced about 15 feet apart; from the ground up high tensile woven wire fence is used as the

main wire, with a single strand of high tensile wire placed about the woven wire as a top wire to the fence.

The seven foot height is essential because bison can jump quite high. Occasionally a bull will jump the 5-wire electric fence described earlier, and this is not acceptable in quarantine situations. If a quarantine animal(s) gets loose and mixes with non-quarantined animals all of the non-quarantined animals must be placed in quarantine. A serious problem could develop if FWP bison escape and mix with cattle on a privately owned ranch. FWP would likely become responsible for the privately owned cattle.

When considering the specifications for a quarantine fence we think it is important to keep in mind that currently Turner Enterprises is holding FWP bison under quarantine, so they have had much more experience than we have. Also the type of 7-foot fence described here does not seem extreme when one considers our experience with animals escaping from game farms with high fences.

Quarantine fences must be constructed in a manner that keeps non-quarantined bison or other livestock from coming into nose-to-nose contact with the quarantined animals. An estimated cost is $30,000 per mile including cattle guards (from D&C).

Summary

When considering the possibility of our Department managing bison on FWP lands one thing that becomes obvious regarding fences is that the same fence used to hold a managed herd will not work as a quarantine fence.

BISON MANAGEMENT

Bison are easiest to handle when they spend winter months on good quality native range. Dave has found that even when bison are provided good native range they still need to be fed supplemental pellets in the winter to make them content and maintain their health. Without pellet feed containing a variety of nutrients and minerals bison continually want to be on the move and push fences, escape, etc. Prior to feeding bison these pellets, keeping bison in the

desired pastures during winter was a constant maintenance problem. Bison are fed 4 pounds per week per animal of the supplement. Pellets are spread from a truck (Figure 3).

Bison seek out higher quality native grasses in winter. Older bison do not eat smooth brome grass readily; young animals are more manageable when it comes to foraging on non-native grasses. It is important to keep in mind that due to deteriorated range conditions on the west side of Spotted Dog WMA one can expect it will be necessary to feed bison during winter months.

It is important to separate winter and summer pasture use for bison. If bison are allowed access to winter pastures during summer months, inadequate forage will be available to them during winter months. This issue becomes of utmost concern on Spotted Dog because the only land base suitable for wintering bison is in poor quality with many introduced grasses of relatively poor nutritional quality. In summary it is usually necessary to separate summer pastures from winter pasture using fences.

If there is adequate snow bison do not require a water source during winter. Where snow is sporadic or low in availability a no freeze water source is necessary.

When bison escape from a pasture it is necessary to have 2 or 3 people with ATV vehicles available to round them back up. When mature bulls escape it is not uncommon for Snowcrest Ranch employees to shoot them with a high powered rifle. Dave indicated that human safety becomes a priority when bulls escape and the ranch had several bad experiences while learning the best handling techniques.

Dave indicated that on the Snowcrest Ranch they maintain a ratio of 16-18 cows per bull. If the ratio goes to 8-10 cows per bull stress becomes an issue. Bulls begin to strongly compete with each other and bison become unsettled and hard to hold in a pasture. Snowcrest Ranch considers 3-years and older bulls as capable of breeding. They consider 3- to 5-year-old bulls as younger bulls and 5+ bulls as trophy bulls, the distinction being that the trophy class bulls are the ones

that can be very difficult to handle. When in the mood, mature bulls can readily jump fences.

Dave indicated that during the rut (August through October) and during calving (April through June) bison become very aggressive and are a public safety hazard. This is a much different situation than in Yellowstone National Park where bison are not routinely handled or hunted by humans. Where bison are frequently handled or hunted they become much more aggressive towards humans during the rut and calving periods. Bison can be cranky in Yellowstone Park but are more used to people quietly observing them. Should bison be on a WMA during the rut or calving periods, it might be necessary to close the WMA to public use for safety reasons.

Handling Facilities

Bison handling for blood drawing, vaccination, ageing, shipping, etc. requires a much stronger built facility than traditionally used for handling cattle (Figure 4). Specifications for the holding facilities at Snowcrest Ranch illustrated in Figure 4 are as follows:

2 3/8" inch pipe for horizontal supports

3" pipe for verticle supports

Pens are 8' in height

Squeeze shoots with a heavy duty crash gate

A material must be placed around the pens to block vision (i. e. on Snowcrest Ranch old conveyer belt material is mounted to pens to block bison vision). If a bison can see where it wants to go it will try to break out to get there.

Everything must be heavily reinforced.

Dave indicated that an 8 foot high pen and chute facility constructed of stacked hay bales reinforced with pipe has also been used in situations where the facility is only needed for 2 or 3 years.

The Department of Livestock has a good portable setup for handling bison.

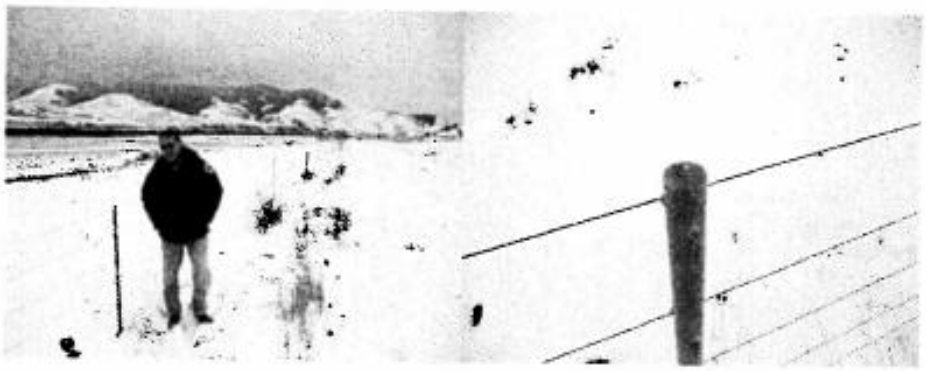


Figure 1. Photos of a five wire high tensile electric fence that has proven effective for managing bison in grazing pasture situations. The fence is 48" high with an 18" bottom wire. Note the placement of solar charger and the gate is mounted higher than the fence.

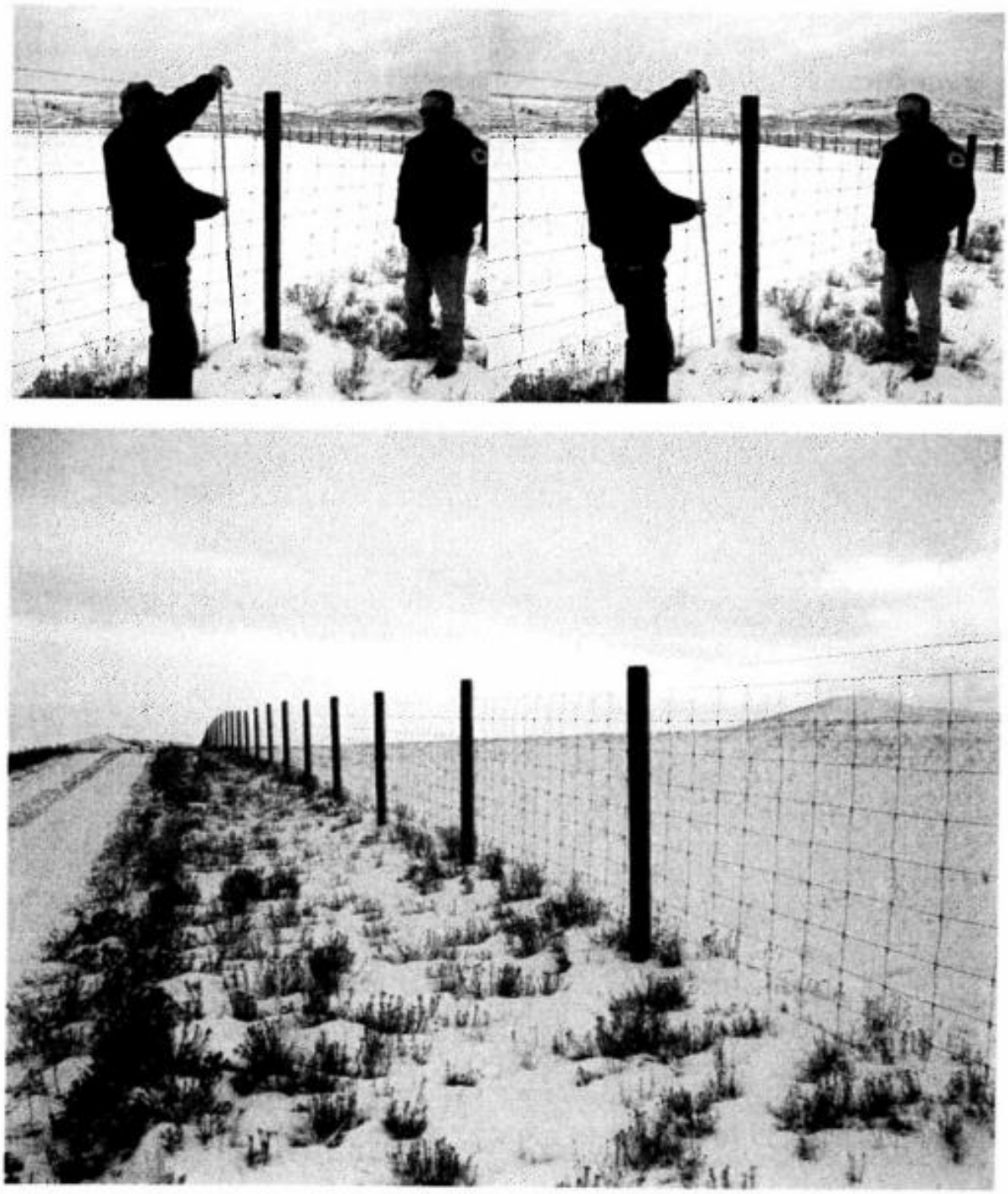


Figure 2. Bison quarantine fence. Note the high tensile page wire and top high tensile wire. Fence height is 8' with wooden brace posts every 15feet.

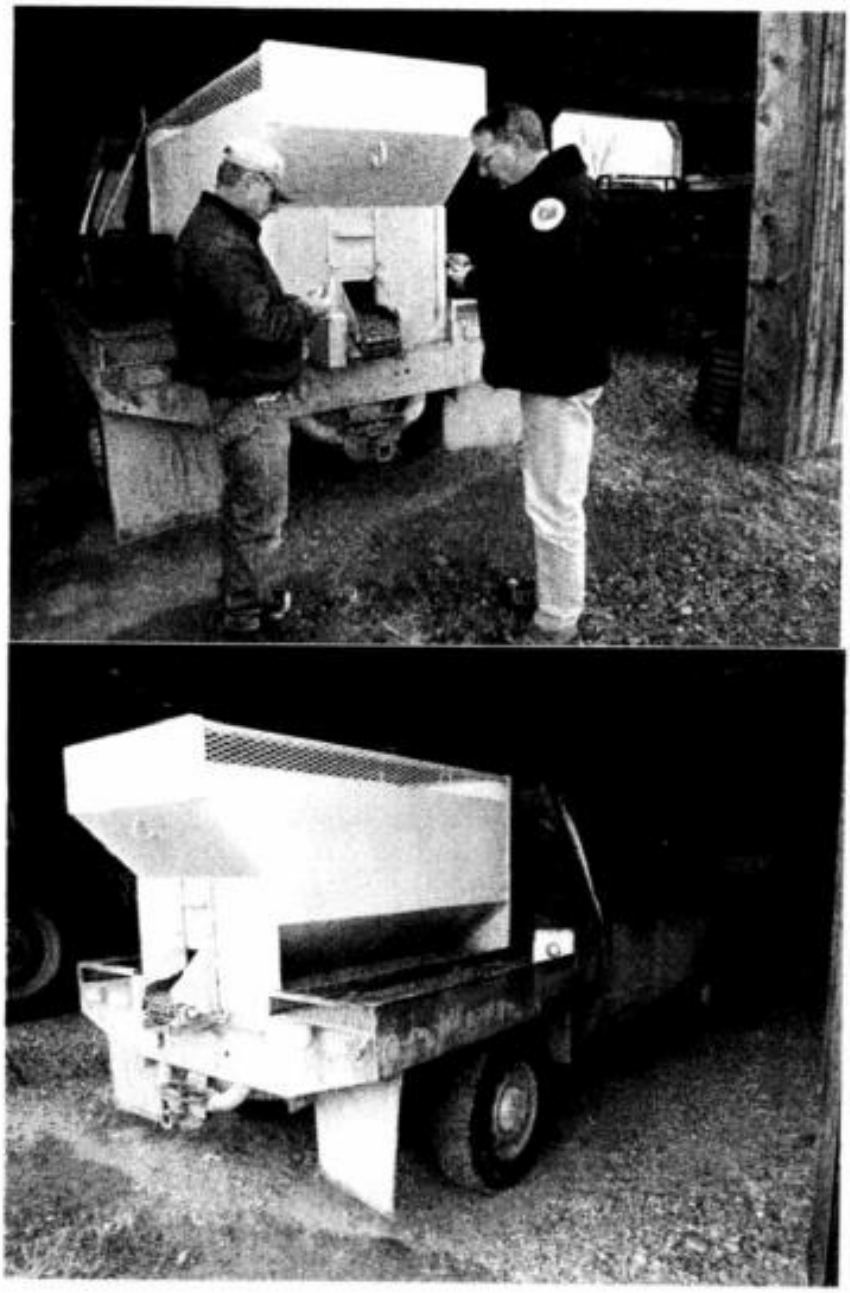
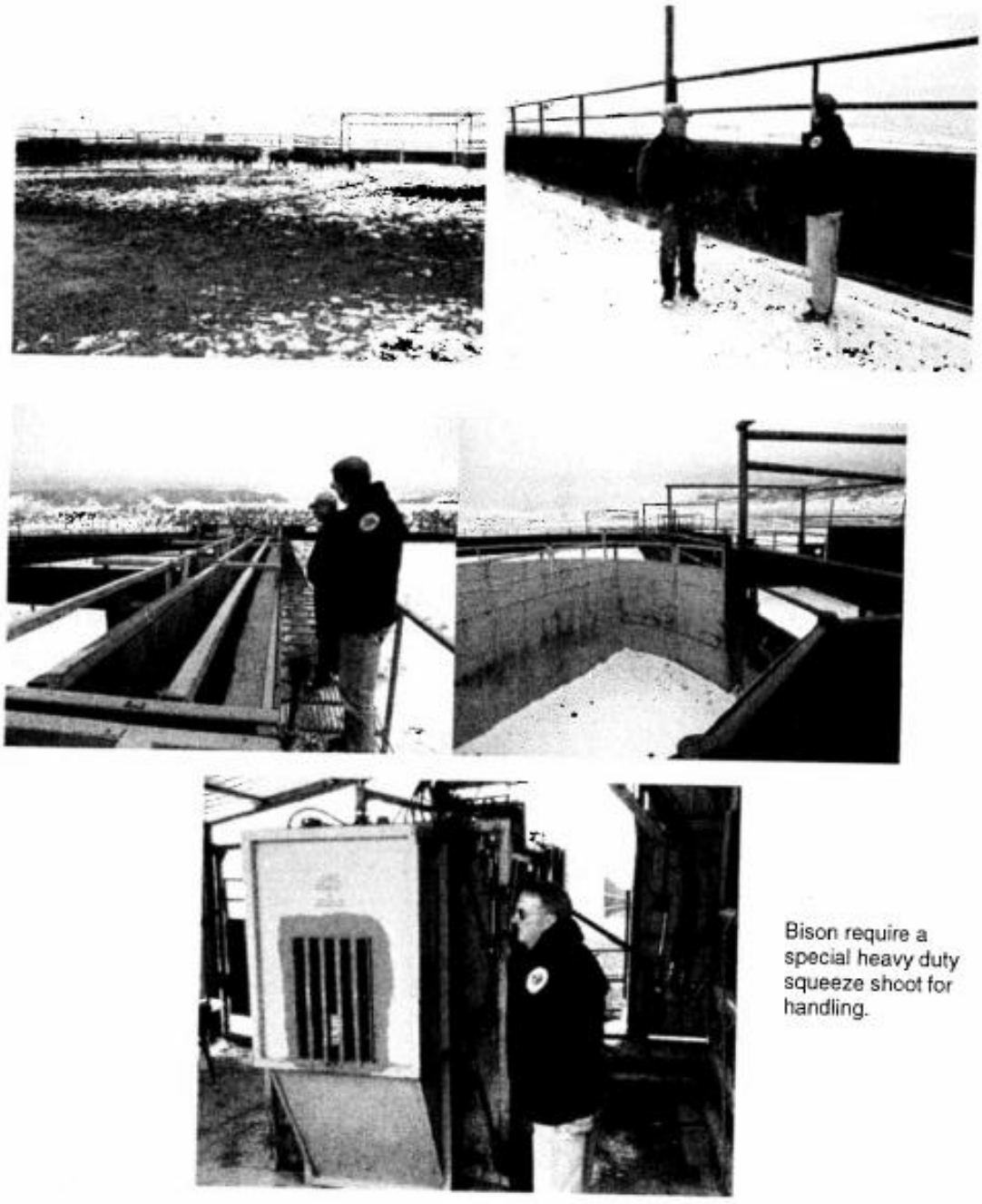


Figure 3. Truck set up to disperse pelleted forage supplements to bison.



Bison require a special heavy duty squeeze shoot for handling.

Figure 4. Bison handling facilities. The structure is 8' in height and constructed with 2 3/8" steel pipe for horizontal supports and 3" steel pipe for vertical supports.